

Eucalyptus

A Complex Challenge

FIRE MANAGEMENT, RESOURCE PROTECTION, AND THE LEGACY OF TASMANIAN BLUE GUM

DURING THE AGE OF EXPLORATION, CURIOUS SPECIES from around the world captured the imagination, desire and enterprising spirit of many different people. With fragrant oil and massive grandeur, eucalyptus trees were imported in great numbers from Australia to the Americas, and California became home to many of them.

Eucalyptus globulus, or Tasmanian blue gum, was first introduced to the San Francisco Bay Area in 1853 as an ornamental tree. Soon after, it was widely planted for timber production when domestic lumber sources were being depleted. Eucalyptus offered hope to the “Hardwood Famine”, which the Bay Area was keenly aware of, after rebuilding from the 1906 earthquake.

Blue gum continues to be the most widespread species of eucalyptus found in California. Some of these trees were planted to create windbreaks or mark property boundaries on lands that are now in national parks and other natural areas. Most historic plantings have expanded far beyond their original scale, as blue gum thrives exceptionally well on the California coast.

ASTONISHING GROWTH RATE

Blue gum grows from 98 to 180 feet tall, reaching heights of 260 feet in California. As much as 60 to 70 percent of their total height is usually achieved by age 10. This rapid growth rate is one of the main reasons these trees were considered for commercial plantations. Rapid growth is accompanied by rapid water uptake, which is why eucalyptus plantings were also used to drain wetlands for development and agriculture.

BARK, LEAVES, AND FIRE ECOLOGY

The 700+ species of eucalyptus are divided into groups on the basis of their bark. The bark on the “gums”, which include *Eucalyptus globulus*, is deciduous. Constant shedding of bark is part of what makes these trees a fire hazard. The bark catches fire readily, and the loose strips tend to carry fire up into the canopy, casting embers outward. Despite the presence of volatile oils that can produce a hot fire, leaves of blue gum eucalyptus are classed as intermediate in fire resistance when green, and juvenile leaves are highly resistant to flaming. It is the litter—the accumulation of

dead, dry, oily leaves and debris—that is especially flammable. Carried by long swaying branches, fire spreads quickly in eucalyptus groves. When there is sufficient dead material in the canopy, fire moves easily through the tree tops.

Adaptations to fire include heat-resistant seed capsules which protect the seed for a critical short period when fire reaches the crowns. One study showed that seeds were protected from lethal heat penetration for about 4 minutes when capsules were exposed to 826° F. Following all types of fire, an accelerated seed shed occurs, even when the crowns are only subjected to intense heat without igniting. By reseeding when the litter is burned off, blue gum eucalyptus like many other species takes advantage of the freshly uncovered soil that is available after a fire.

MANAGING EUCALYPTUS

Once established without natural competitors, blue gum trees can spread rapidly, displacing native vegetation, and altering historic landscapes. They also have an uncanny ability to survive. Their response to cutting is to undergo mass-sprouting from the base or trunk, and even underground from the root system. This has led to experimentation with a variety of treatments. At some sites, historic eucalyptus trees are intensively managed to preserve a cultural resource. In other places, stands are completely removed, and the area is revegetated with native plants. Immediate fuel reduction can be accomplished by thinning tree stands and removing surface debris. Most projects have multiple objectives.

PURPOSE OF PUBLICATION

Since the inception of the National Fire Plan in 2001, the national parks in the San Francisco Bay Area have increased their hazardous fuel programs to reduce the threat of wildfire and restore ecosystem health. Projects involving blue gum eucalyptus have proven to be especially complex. These projects must balance fire management objectives with those of natural and cultural resource preservation. These same challenges have been faced by other land managers as well. The goal of this publication is to demonstrate the environmental considerations associated with eucalyptus treatments, and to give examples of some of the different strategies that have been used.



Upper map: Native *E. globulus* distribution. From Brooker and Kleinig, 1993. Field guide to eucalypts Volume 1: south-eastern Australia, second ed. Bloomings Books, Victoria, Australia.

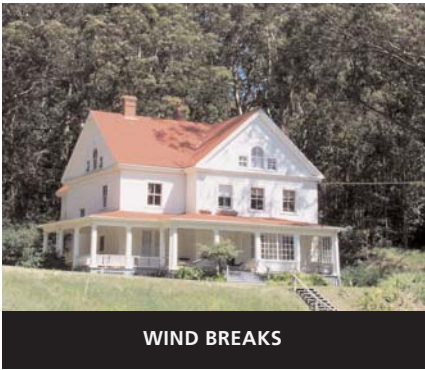
Lower map: California counties where *E. globulus* has been confirmed. © 2005 Calflora. Berkeley, California, Calflora Database, www.calflora.org.

Decisions about eucalyptus are guided by a 1999 Presidential Executive Order on invasive species and the 1966 National Historic Preservation Act.

Hazardous Fuel



Historic Sites



Treatment Options



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